UNCLASSIFIED PROCESSING DATE--11SEP70

1/2 008

TITLE--O ACYLATION OF PHENOL WITH CARBOXYLIC ACIDS -U-

AUTHOR--FOKIN, A.V., KOLOMIYETS, A.F., STUDNEV, YU.N., KUZNETSOVA, L.O.

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA SIBIRSKOGO OTDELENIYA AKADEMII NAUK SSSR, NO 2, SERIYA KHIMICHESKIKH NAUK, 1970, NR 1, PP 87-90

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHENOL, CARBOXYLIC ACID, ESTER, ACYL RADICAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0289/70/000/001/0087/0090

PROXY REEL/FRAME--1984/1766

CIRC ACCESSION NO--AP0100346

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--11SEP70

2/2 008

CIRC ACCESSION NO--AP0100346

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CARBOXYLIC ACIDS (I) ACYLATE PHENOL AND GIVE ESTERS WHEN THE REACTION IS PERFORMED AT 110-140DEGREESC (AZEOTROPIC DISTILLATION OF WATER) IN THE PRESENCE OF HCL, 4,CH SUB3 C SUB6 H SUB4 SO SUB3 H, H SUB2 SO SUB4 (II) OR HCLO SUB4 (III); II AND III ARE BETTER CAYALYSTS. RELATIVELY WEAKER CARBOXYLIC ACIDS ARE STRONGER ACYLATION AGENTS. THE GREATER ACIDITY OF ACIDS RESULTS IN SMALLER ACYLATING ABILITY. THE DATA ARE IN ACCORD WITH THE POSTULATED INTERMEDIATE FORMATION OF ACYL CATION.

UNCLASSIFIED

UDC 51

USSR

VOLKOV, A. A., KOLOMIYETS, B. K.

"Logical Principles of Constructing Active Hierarchical Systems"

V sb. Detsentralizovan. metody upr (Decentralized Methods of Control--collection of works), Moscow, 1972, pp 134-148 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V380)

No abstract

1/1

USSR

UDC: 621.315.592

GEORGITSE, Ye. I., IVANOV-OMSKIY, V. I., KOLOMIYETS, B. T., MAL'KOVA, A. A., and SMEKALOVA, K. P., A. F. Ioffe Physico-Technical Institute, Leningrad

"Interaction of Hot Electrons and Phonons in $Cd_xHg_{1-x}Te$"

Leningrad, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp 1283-1287

Abstract: Experiments are described for investigating the photoconductivity and photomagnetic effect in several $Cd_xHg_{1-x}Te$ alloys for the purpose of studying the peculiarities of heating electrons by light as well as the interactions of phonons and photoelectrons. The specimens, in which $0.15 \leqslant x \leqslant 0.24$, were n-type and were investigated at temperatures of 10 and 80° K in magnetic fields of up to 18 kOe. To avoid heating of the electron gas by the stationary field, the photoconductivity was measured in electric fields of no more than 0.1 V/cm intensity; all measurements were made under conditions of weak light signals $\Delta n \leqslant n_0$, where n_0 is the concentration of balanced electrons. Spectra for the photoconductivity and the photomagnetic effect are plotted and a table of parameters for various combinations of the $Cd_xHg_{1-x}Te$ formula is presented.

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GEORGITSE, Ye. I., et al, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp 1283-1287

The method by which the measurements were conducted is explained in an earlier article (Ye. I. Georgitse, et al, FTP, 5, 1971, p 1765). The assistance of I. P. Polushchuk, graduate of Tbilisi University, is acknowledged.

2/2

USSR UDC: 621.315.592

AVER'YANOV, V. L., KARPOVA, L. N., KOLOMIYETS, B. T., LYUBIN, V. M., FEDOROVA, Ye. I., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences of the USSR, Leningrad

"Investigation of Local States in Glassy Semiconductors of the Selenium--Arsenic System"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 9, Sep 72, pp 1709--1715

Abstract: The authors study the change in photoelectric properties and characteristics of heat-stimulated depolarization with variation in the composition of glassy semiconductors in the selenium-arsenic system. When the concentration of arsenic in the specimen is increased there are changes in the sign of the photorectification effect, the spectral characteristics and kinetics of photoconductivity, the slope of the current-illumination characteristics, and the ratio between low-temperature and high-temperature mexima in the curve for heat-stimulated depolarization. The results are discussed from the standpoint of correlation between composition, structure and parameters of local states.

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USSR

UDC 621.315.592

GEORGITSE, YE. I., IVANOV-OMSKIY, V. I., KOLOMIYETS, B. T., MAL'KOVA, A. A., SMEKALOVA, K. P.

"Fluctuations of the Photoconductivity in a Magnetic Field and the Photomagnetic Effect of $Cd_{0.20}Hg_{0.80}Te$ Alloy"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 455-457

Abstract: A study was made of photoconductivity in a transverse magnetic field and the photomagnetic effect of $Cd_{0.20}Hg_{0.80}Te$ alloy at 10° K. The oscillatory nature of the spectra with a period depending on the magnetic field intensity was detected. The fluctuations of the photoelectric phenomenon are caused by quantum oscillations of optical absorption. The g-factor and effective mass of the electrons were estimated. Graphs are presented showing the photoconductivity spectra of the alloy for different magnetic field intensities. The oscillation period with respect to energy in the photoconductivity and photomagnetic effect spectra increases with the magnetic field. Therefore, they do not pertain to the phonon oscillations. The presence of oscillation peaks in the field functions indicates that the oscillations are caused by quantization of the energy spectrum of the electrons in the magnetic field. The oscillation period $\Delta 1/H$ is not constant, and, consequently, the oscillations cannot be

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GEORGITSE, YE. I., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 455-457

considered Shubnikov-de Haas or Gurevich-Firsov. It is proposed that the fluctuations of the absorption coefficient in the magnetic field are responsible for the observed peculiarities. The correspondence of the minimum photoconductivities to the maximum photomagnetic effect indicates the relation of the oscillations of the photoelectric phenomena of the alloy to the quantum oscillations of the optical absorption coefficient. Correspondence of the estimates of the g-factor and the effective electron mass with published data confirms the correctness of the assumptions with respect to the nature of the observed fluctuations. However, considering the measurement taken in non-polarized light, the results obtained do not permit a more complete analysis of the energy spectrum of electrons in a magnetic field.

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USSR

UDC 621.382.2

YURLOVA, G.A., KOLOMIYETS, B.T.

"Glasses In The System Ge-As-Te And The Technology Of Producing Devices On Their Bases"

Elektron.tekhnika. Nauch.-tekhn.sb. Mikroelektronika (Electronics Technology. Scientific-Technical Collection. Microelectronics), 1971, No 3(29), pp 14-17 (from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2B161)

Translation: The electrical conductivity and the activation energy are determined for glasses of the system Ge-As-Te with gradual isomorphic substitution of part of the germanium for silicon and part of the tellurium for selenium. The electrical parameters are presented of two- and three-electrode S-switches. Summary.

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USSR

UDC 621.315.592

ZHURAKOVSKIY, L. A., ZEYNALLY, A. Kh., KOLOMIYETS, B. T., KRASIL'NIKOVA, V. A.

"Frequency Characteristics of Diode Structures of the Metal-Chalcohalide Glass-Metal Type"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 5, No 10, October 1971, pp 1917-1919

Abstract: A study was made of diode structures of the metal-chalcohalide glass-metal type (SbSI and AsTeI glass was used as the interstitial layer) with gold, silver, copper and antimony electrodes. These structures have static volt-ampere characteristics described by power functions with the exponent n varying from 1 to 3-5. The Au-SbSI-Au structure which has a static volt-ampere characteristic containing a segment of N-type negative resistance constitutes and exception. The frequency dependencies of the conductance and susceptance were measured in the frequency range from 0 to 10 megahertz. In the low-frequency range the conductance does not depend on the frequency, but in the high frequency range the conductance depends approximately linear on frequency. The capacitance of the diode structures is constant at low frequencies, and it decreases with an increase in frequency.

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ZHURAKOVSKIY, L. A., et al., Fizika i Tekhnika Poluprovodnikov, Vol 5, No 10, October 1971, pp 1917-1919

The experimental results are explained under the assumption that the conductance is of a discontinuous nature in the high frequency range and that equivalent schemes of the investigated diode structures are different at low and high frequencies. Graphs are presented for the capacitance of the Au-SbSI-Au diode structure as a function of the amplitude of the applied voltage taken at various frequencies. These relations confirm that at low frequencies the capacitance of the diode structure must depend on the injection level, that is, it must depend on the voltage amplitude and increases with an increase in the latter, and at high frequency the relation is not observed since the charge capacitance does not depend on the amount of injected charge.

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1/2 028 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--MOBILITY OF ELECTRONS IN INTRINSIC MERCURY TELLURIDE AND IN N TYPE MERCURY TELLURIDE -U-

AUTHOR-(04)-IVANOVOMSKIY, V.I., KOLOMIYETS, B.T., OGOROONIKOV, V.K., SMEKALOVA, K.P.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 264-9

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MERCURY, TELLURIDE, ELECTRON MOBILITY, ELECTRON SCATTERING, CRYSTAL IMPURITY, PHONON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1865 STEP NO--UR/0449/70/004/002/0264/0269

CIRC ACCESSION NO--AP0118829

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0118829

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TEMP. DEPENDENCES OF COND. R AND THE HALL MOBILITY, R SIGMA, OF N HGTE ARE DETD. IN A WIDE RANGE OF TEMPS. AND IMPURITY CONCNS. THE R SIGMA IS MEASURED IN WEAK MAGNETIC FIELDS (SIMILAR TO 03) AND R IS WEAK ELEC. FIELDS SIMILAR TO 10 MV-CM. WITH THE AID OF THE 2 BAND THEORY OF COND. IT IS SHOWN THAT AT THE EXISTING HIGH RATIO OF ELECTRON TO HOLE MOBILITY (50-100) THE VALUES OF R AND R SIGMA CORRESPOND TO THE CONCN. AND HALL MOBILITY OF THE ELECTRONS, RESP. THE INCREASE OF N SUB3 TO SIMILAR TO 10 PRIME19-CM PRIME3 LEADS TO A DROP IN MOBILITY BY 2 DECADES. THERE IS NO VARIATION OF R SIGMA IWTH TEMP. FOR STRONGLY DOPED CRYSTALS UP TO 77DEGREESK ABOVE WHICH IT DECREASES SLIGHTLY. IN PURE SAMPLES R SIGMA DECREASES IRREGULARLY WITH TEMP. FROM 10 PRIME6 CM PRIME2-V SEC AT 20DEGREESK TO SIMILAR TO 3 TIMES 10 PRIME4 CM PRIME2-V SEC AT 130DEGREESK. THE THEORETICAL R SIGMA-N SUB3, DEPENDENCE LIES ABOVE THE EXPTL. WHICH IS DOPED SAMPLES AND ON HOLES FOR THE PURE ONES. ACCOUNTING FOR THE SCREENING EFFECT BY VALENCE ELECTRONS THE ELECTRON MIBILITY IN HGTE AT 4.2DEGREESK IS ESTD. AS (1-3) TIMES 10 PRIME6 CM PRIME2-V SEC. ELECTRON SCATTERING ON OPTICAL PHONONS IS ALSO SIGNIFICANT AT 100-300DEGREESK, WHILE ACOUSTIC PHONONS HAVE NO EFFECT IN THE SCATTERING PROCESS.

FACILTIY: FIZ.-TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--LOCAL LEVELS IN HEXAGONAL SELENIUM -U-

AUTHOR-(04)-KOLOMYETS, B.T., BANDROVSKAYA, I.K., TSYGELNAYA, N.N., KHODOSEVICH, P.K.
COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 387-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--SELENIUM, ACTIVATION ENERGY, FORBIDDEN BAND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0937 STEP NO--UR/0449/70/004/002/0387/0388

CIRC ACCESSION NO--AP0116446
UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116446

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTL. DATA INDICATE, CONTRARY TO ASSUMPTION, THAT THERE ARE NOT 2 OR 3 GROUPS OF DISCRETE LOCAL LEVELS IN THE FORBIDDEN BAND OF HEXAGONAL SE; THE TEMP. DEPENDENCE (T EQUALS 83-300DEGREESK) OF THE COND. (DETD. BY A CYCLING METHOD) INDICATES THAT THE FORBIDDEN BAND OF HEXAGONAL SE HAS A MORE COMPLICATED STRUCTURE WITH A CONTINUOUS SPECTRUM OF THE LOCAL LEVEL DISTRIBUTION. THERE CAN EXIST INTERVALS WITH AN ELEVATED D. OF LEVELS IN THIS SPECTRUM; SUCH INTERVALS APPEAR IN THE MEASUREMENT OF THE THERMOSTIMULATED COND. THE ACTIVATION ENERGY, 0.25 EV, CORRESPONDS TO THE DARK COND. THE TEMP. DEPENDENCE MEASURED AFTER A CYCLE OF ILLUMINATION AT 83DEGREESK, QUICK HEATING, AND SLOW COOLING, GAVE ACTIVATION ENERGIES OF 0.075, 0.090, AND 0.13 EV IN 3 CONSECUTIVE CYCLES. FACILITY: L'VOV. TORG.-EKON. INST., LVOV, USSR.

UNCLASSIFIED

1/3 016 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--MAGNETIC SUSCEPTIBILITY OF HOLES IN MERCURY TELLURIDE, INDIUM ANTIMONIDE, AND GERMANIUM -U-

AUTHOR-(04)-KOLOMYETS, B.T., GELMONT, B.L., IVANOVOMSKIY, V.I., MELNIK, V.M.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 299-304

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--MAGNETIC SUSCEPTIBILITY, MERCURY COMPOUND, TELLURIDE, INDIUM ANTINOMIDE, GERMANIUM, HALL CONSTANT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0938 STEP NO--UR/0449/70/004/002/0299/0304

CIRC ACCESSION NO--AP0116447

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R001401420005-4"

2/3 016 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116447

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MAGNETIC SUSCEPTIBILITY (X) MEASUREMENTS OF P TYPE HGTE, INSB, AND GE WERE CARRIED OUT IN A WIDE RANGE OF TEMP. AND CARRIER D. TO DET. THE CONTRIBUTION OF LIGHT AND HEAVY HOLES. AN EXPLICIT EXPRESSION FOR X OF ELECTRONS IN A WEAK MAGNETIC FIELD IS DERIVED AS A FUNCTION OF FERMI ENERGY IN THE CASE OF INSB. A SIMILAR EXPRESSION WHERE ONLY S P INTERACTION IS ACCOUNTED FOR IS ALSO PRESENTED. THE SAME EXPRESSIONS ARE VALID ALSO FOR HGTE, TAKING INTO ACCOUNT THAT E SUBG IS SMALLER THAN 0. CARRIER DS. WERE DETD. FROM HALL COEFF. MEASUREMENTS AT 4.2DEGREESK, WHERE THE EFFECT OF THE MAGNETIC FIELD IS NEGLIGIBLE. FROM 4.2 TO SIMILAR TO 77DEGREESK, X OF P HGTE IS ALMOST INDEPENDENT OF TEMP. AND FROM 77 TO IS SIMILAR TO 290DEGREESK IT RISES STEEPLY WITH TEMP. THE INCREASE OF HOLE CONCN. LEADS TO A DECREASE OF X, IMPLYING THAT HOLES IN P HGTE ARE DIAMAGNETIC.

THE TEMP. DEPENDENCE OF X OF P INSB IS SIMILAR EXCEPT FOR THE SAMPLE WITH N SUBP EQUALS 5 TIMES 10 PRIME13-CM PRIME3, WHERE X DECLINES WITH INCREASING TEMP. THIS IS ASSOCD. WITH THE INCREASE OF ELECTRON D. IN THE REGION OF MIXED COND. THE EXPTL. CARRIER D. DEPENDENCE OF X IN P HGTE IS A MONOTONICALLY DECAYING CURVE WHICH IS CLOSE TO THE THEORETICALLY CALCD. EXCEPT FOR THE LOWEST HOLE CONCN. SAMPLES, WHERE THE PARAMAGNETIC CONTRIBUTION HAS TO BE ACCOUNTED FOR AT GREATER THAN 4.2DEGREESK. THE CONCN. DEPENDENCE OF X OF P INSB IS NONMONOTONIC AND SHOWS THAT THIS SEMICONDUCTOR IS PARAMAGNETIC AT 3 TIMES 10 PRIME16 MINUS 6 TIMES 10 PRIME18-CM PRIME3, DIAMAGNETIC AT 6 TIMES 10 PRIME18 MINUS 3.5 TIMES 10 PRIME19-CM PRIME3, AND AGAIN PARAMAGNETIC AT 3.5 TIMES 10 PRIME19-CM PRIME3.

UNCLASSIFIED

3/3 016 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116447

ABSTRACT/EXTRACT--THE WAVE VECTOR DEPENDENCE OF LIGHT CARRIER ENERGY IS NONPARABOLIC BECAUSE OF STRONG S P INTERACTION. THE PARAMAGNETIC CHARACTER OF N HGTE AND P INSB IMPLIES THAT OTHER BANDS BESIDES S P INTERACTION ARE INVOLVED. THE EFFECT OF CRIMPING OF THE ISOENERGETIC SURFACE OF HEAVY HOLES ON THEIR X IS CONSIDERABLE FOR GE, BUT IS INSIGNIFICANT WITH P HGTE AND P INSB. FACILITY: FIZ. TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

USSR

IVANOV-OMSKIY, V. I., KOLOMIYETS, B. T., MEL'NIK, V. M. and OGORODNIKOV, V. K., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences USSR, Leningrad

"Magnetic Susceptibility of HgTe"

Abstract: Measurements of magnetic susceptibility in fields above critical (H_{cr} = 3 koe) when anomalous susceptibility disappears are analyzed. The Faraday method was used to measure the magnetic susceptibility of n-HgTe single crystals over a wide range of temperatures (2-300°K) and concentrations ($1.6 \cdot 10^{15}$-$4 \cdot 10^{18}$ cm^{-3}). The lattice susceptibility was determined from measurements on pure samples at liquid helium temperatures and was found to be diamagnetic and equal to $(-0.34 \pm 0.003) \cdot 10^{-6}$ cgs electrostatic units. The electron gas was paramagnetic over the entire range of concentration and temperatures. The results were analyzed on the basis of the theory taking into account the inverse order of zones, as in α Sn. The agreement between experiment and theory is given as an argument for using the inverse zone structure in HgTe.

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USSR

KOLOMIYETS, B. T., MAZETS, T. F., EFENDIEV, Sh. M.

"Effective Mass of Charge Carriers in Vitreous Arsenic Chalcogenides"

Leningrad, Fizika Tverdogo Tela, Vol 12, No 2, 1970, pp 661-663

Abstract: This is an article describing measurements of the electrical absorption on several compounds of the type described in the title. Measurements were made on As_2S_3, As_2S_3.As_2Se_3, As_2Se_3, and $1.5As_2Se_3 \cdot As_2Te_3$ using an automatic device based on the IKM-1 monochromator with a diffraction grating of 1200 lines per mm, a selective amplifier, a synchronous detector, and an EPP-09 electronic potentiometer. The authors performed this experiment because of the marked growth of interest in recent years in the behavior of charge carriers in disordered systems. These electrical absorption measurements make it possible to estimate the mass of the charge carriers, an estimate which is difficult to make on the basis of kinetic phenomena. A table of the estimates for the different compounds measured is provided.

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1/2 026 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--ENERGY SPECTRUM OF VITREOUS ARSENIC SULFIDE -U-

AUTHOR--KOLOMIYETS, B.T., MAZETS, T.F., EFENDTYEV, SH.M., ANDRIYESH, A.M.

COUNTRY OF INFO--USSR

SOURCE--J. NON. CRYST. SOLIDS 1970, 4(1), 45-56

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--ABSORPTION SPECTRUM, ARSENIC SULFIDE, VOLT AMPERE CHARACTERISTIC, ENERGY SPECTRUM, PHOTOCONDUCTIVITY, SEMICONDUCTOR FILM, FORBIDDEN BAND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0386 STEP NO--NE/0000/70/004/001/0045/0056

CIRC ACCESSION NO--AT0108680

ZZZZZZZZZZZZ UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AT0108680

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A BRIEF REVIEW OF AN EXPTL. STUDY OF REFLECTIVITY, ABSORPTION AND PHOTOCOND. SPECTRA, AND CURRENT VOLTAGE CHARACTERISTICS OF VITREOUS AS SULFIDE IS PRESENTED. THE ABSORPTION SPECTRA WERE OBTAINED IN THE HIGH ABSORPTION RANGE UP TO K EQUALS 10 PRIME5 CM PRIME NEGATIVE1. THE VALUE OF THE FORBIDDEN BAND E SUBG OF VITREOUS AS SUB2 S SUB3 OBTAINED FROM THE OPTICAL DATA IS 2.4 EV. THE ABSORPTION EDGE AT ENERGIES E IS LESS THAN E SUBG HAS AN EXPONENTIAL CHARACTER DUE TO LOCALIZED STATES NEAR THE ALLOWED BAND EDGES. IN AN ELEC: FIELD THE EXPONENTIAL ABSORPTION EDGE SHIFTS TO A LOWER ENERGY RANGE OBEYING FRANZ' THEORY. FROM A STUDY OF THE PHOTOCOND. SPECTRA AND CURRENT VOLTAGE CHARACTERISTICS IN THE NONLINEAR RANGE, SOME CONCLUSIONS CAN BE MADE CONCERNING THE ENERGY DISTRIBUTION OF THE LOCALIZED STATES IN THE FORBIDDEN BAND OF THE AMORPHOUS AS SULFIDE FILMS.

ZZZZZZZZZZZ UNCLASSIFIED

Acc. Nr: AP0048187 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: UR0449

KOLOMIYETS B.T.

105118j Effect of pressure on the electrical and photoelectric properties of amorphous and single-crystal arsenic sesquiselenide. Kolomiets, B. T.; Raspopova, E. M. (Fiz.-Tekh. Inst. im. Ioffe, Leningrad, USSR). *Fiz. Tekh. Poluprov.* 1970, 4(1), 157–61 (Russ). Results of the study of the effect of pressure on the cond. and spectral photocond. of amorphous and single-crystal As_2Se_3 are given. The coeffs. of change in the width of the forbidden band with pressure $(dE/dP) = -16 \times 10^{-6}$ eV/atm. for the amorphous and $(dE_g/dP) = -17 \times 10^{-6}$ eV/atm. for the single-crystal materials, and the deformation potential for amorphous As_2Se_3, $(D_g) = 1.6$ eV. The change in width of the forbidden band during the transition from the cryst. to the amorphous state was due to the fact that the disorder capacity of the amorphous As_2Se_3 was the same as that of the cryst. material close to the m.p.

S. B. Radding

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REEL/FRAME
19791900

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1/2 039 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--LOCAL STATES IN AMORPHOUS SEMICONDUCTORS STUDIED BY THE THERMOSTIMULATED DEPOLARIZATION METHOD -U-

AUTHOR-(03)-LYUBIN, V.M., AVERYANOV, V.L., KOLOMIYETS, B.T.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 394-5

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--DEPOLARIZATION, THERMAL EFFECT, THIN FILM SEMICONDUCTOR, AMORPHOUS SEMICONDUCTOR, SELENIDE, ACTIVATION ENERGY, EXCITED STATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1997 STEP NO--UR/0449/70/004/002/0394/0395

CIRC ACCESSION NO--AP0105071

UNCLASSIFIED

2/2 039 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105071

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THERMOSTIMULATED DEPOLARIZATION WAS STUDIED IN FILMS (GLASS LIKE AS SUB2 SE SUB3, GLASS LIKE TL SUB2 SE.AS SUB2 SE SUB3, AND AMORPHOUS SB SUB2 SE SUB3; 0.5-2 MU THICK, EVAPD. IN VACUO), POLARIZED AT SIMILAR TO 90DEGREESK (10 PRIME4-10 PRIME5V-CM, WITH SIMULTANEOUS STRONG ILLUMINATION), DURING HEATING TO SIMILAR TO 300DEGREESK. THE ACTIVATION ENERGIES FOR VARIOUS GROUPS OF CENTERS ARE: 0.05, 0.17-0.25, AND 0.4-0.45 EV FOR TL SUB2 SE.AS SUB2 SE SUB3; 0.3 AND 0.45 EV FOR AS SUB2 SE SUB3; AND 0.1, 0.15-0.18, AND 0.22-0.25 EV FOR SB SUB2 SE SUB3. THE THERMOSTIMULATED DEPOLARIZATION METHOD MAKES IT POSSIBLE TO ELUCIDATE REGULARITIES OF THE SYSTEM OF LOCAL STATES IN THE FORBIDDEN GAP OF AMORPHOUS AND GLASS LIKE SEMICONDUCTORS WITH MORE DETAIL. FACILITY: FIZ. TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

1/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EFFECTIVE MASS OF CHARGE CARRIERS IN GLASSY ARSENIC CHALCOGENIDES -U-

AUTHOR-(03)-KOLOMIYETS, B.T., MAZETS, T.F., EFENDYEV, SH.M.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(2), 661-3

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ABSORPTION SPECTRUM, OPTIC SPECTRUM, ABSORPTION EDGE, ARSENIC COMPOUND, CHALCOGENIDE GLASS, CARRIER DENSITY, ELECTRIC FIELD, LINE SHIFT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1975 STEP NO--UR/0181/70/012/002/0661/0663

CIRC ACCESSION NO--AP0105049

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105049

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MEASUREMENTS WERE CARRIED OUT ON THE SHIFT OF THE OPTICAL ABSORPTION EDGE (ELECTROABSORPTION ON A SERIES OF COMPDS. OF GLASSY AS CHALCOGENIDES WITH SUBSEQUENT SUBSTITUTITON OF HEAVIER CHALCOGEN ELEMENTS. MEASUREMENTS ON AS SUB2 S SUB3, AS SUB2 S SUB3 TIMES AS SUB2 SE SUB3, AS SUB2 SE SUB3, 15AS SUB2 SE SUB3 TIMES AS SUB2 TE SUB3 WERE CARRIED OUT WITH A MONOCHROMATOR WITH DIFFRACTION GRATING, SELECTIVE AMPLIFIER, SYNCHRONOUS DETECTOR, AND ELECTRONIC POTENTIOMETER. PLANE PARALLEL MASSIVE SPECIMENS WERE USED 60-300 MU THICK. ELEC. FIELD INTENSITY WAS 10 PRIME5 V-CM AND TEMP. WAS ROOM TEMP. DEPENDENCE IS GIVEN OF THE SHIFT OF THE OPTICAL ABSORPTION EDGE DELTA E SUBG ON THE INTENSITY OF THE ELEC. FIELD. THESE DEPENDENCES CAN BE WELL APPROXIMATED BY THE POWER LAW DELTA E SUBG SIMILAR TO F PRIMEN, WHERE N EQUALS 1.8-2.0. THE NATURE OF THE FIELD DEPENDENCE OF THE MAGNITUDE OF THE SHIFT OF THE ABSORPTION EDGE AS WELL AS ITS DEPENDENCE ON THE ENERGY OF INCIDENT PHOTONS ARE SATISFACTORILY DESCRIBED BY THE W. FRANTZ (1958) THEORY FOR SUBSTANCES WITH EXPONENTIAL EDGE.

FACILITY: FIZ. TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

1/2 046 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--PHONON PLASMA INTERACTION AND INTERBAND TRANSITIONS IN MERCURY TELLURIDE -U-

AUTHOR-(05)-IVANOVOMSKIY, V.I., KOLOMIYETS, B.T., MALKOVA, A.A., MARKOV, YU.F., MEKHTIYEV, A.SH.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 417-19

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MERCURY COMPOUND, TELLURIDE, SINGLE CRYSTAL PROPERTY, ELECTRON MOBILITY, IR REFLECTANCE, PHONON INTERACTION, PLASMA INTERACTION, CRYOGENIC PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0091 STEP NO--UR/0449/70/004/002/0417/0419

CIRC ACCESSION NO--AP0105177

UNCLASSIFIED

2/2 046 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105177

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IR REFLECTANCE WAS MEASURED FOR WAVELENGTHS OF 50-90 MU FROM INTRINSIC HGTE AT 80DEGREESK USING AN OPTICALLY POLISHED SURFACE OF A SINGLE CRYSTAL WITH N EQUALS 1.6 TIMES 10 PRIME15-CM PRIME3 AND AN ELECTRON MOBILITY OF 8 TIMES 10 PRIME5 CM PRIME2-V-SEC AT 4.2DEGREESK. EXPRESSIONS ARE GIVEN FOR ACCOUNTING FOR THE PHONON PLASMA INTERACTION, AND A THEORETICAL CURVE WAS SET UP FOR THE REFLECTANCE AT 80DEGREESK. FACILITY: FIZ. TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC: 621.315.592

KOLOMIYETS, B. T., LEBEDEV, E. A., and SMORGONSKAYA, E. A.

"The Mechanism of Breakdown in Chalcogenidic Glasses"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 2073-2075

Abstract: Noting that some experimental data in the electrical behavior of layers of chalcogenidic glass differ from conclusions of the theory of thermoelectronic breakdown, the authors offer additional data on the subject of breakdown in this type of material in the form of curves for the voltage in the breakdown field and the field itself as functions of the temperature. These curves were obtained by measurements of thick layers of the material, with the composition $Si_{1.2}Ge_{1.0}As_{3.0}Te_{4.8}$, in which thermal breakdown was observed at room temperature and constant voltage. The measurements were made in the temperature interval of 130 to 330° K, on specimens 60 and 35 μ thick. The curves show that thermal breakdown becomes electronic breakdown with reduced power dissipation at low temperatures. It is also determined that the breakdown field is about the same for thin as for thick layers when measured at low temperatures and short pulses.
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USSR

UDC: 621.315.592

KOLOMIYETS, B. T. and RASPOPOVA, Ye. M.

"Photoconductivity Spectra of Vitreous As_2Se_3 in Modulated and Unmodulated Light"

Leningrad, Fizika i tekhnika poluprovodnikov, vol 6, No 6, 1972, pp 1050-1053

Abstract: This paper is the continuation of an earlier article by the same authors in the same journal (4, 1970, p 157) which presented the spectrum of the unmodulated photoconductivity of As_2Se_3 specimens. Comparison of this spectrum with the optical absorption curve showed some inconsistencies due to observation of the photoconductivity at photon energies of an essentially lower level than the optical width of the forbidden zone. The purpose of the present paper, therefore, is to give results of further investigations into this situation. In the experiments of the present paper the photoconductivity with modulated as well as unmodulated light was investigated in As_2Se_3 specimens developed by a special technique invented in the authors' laboratory at the A. F. Ioffe Physico-Technical Institute in Leningrad. Further details of the equipment, including the IKS-12 monochromator for obtaining the spectra and the Vakutronik VA-J-51 electrometer for measuring the

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USSR UDC: 621.315.592

KOLOMIYETS, B. T., et al, Fizika i tekhnika poluprovodnikov, vol 6, No 6, 1972, pp 1050-1053

unmodulated photoconductivity, are given together with sample spectra. The authors conclude by expressing their gratitude to Ye. B. Ivkin, B. V. Pavlov, and V. M. Lyubin.

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USSR

UDC: 621.315.592

KOLOMIYETS, B. T. and RASPOPOVA, Ye. M.

"Shift of the Optical Absorption Limit of Vitreous As_2Se_3 Under Pressure"

Leningrad, Fizika i tekhnika poluprovodnikov, vol 6, No 6, 1972, pp 1103-1107

Abstract: This paper is based on an earlier work by the same authors, published in the same journal (4, 1970, p 157) named above. The earlier article computed the shift in the optical absorption limit from the shift in photoconductivity spectra; in the experiments described by the present paper, direct measurements of the shift in the optical absorption limit under pressure were made. These measurements were conducted in a hydrostatic compression device with sapphire windows, and the medium for the transmission of the pressure was oil. The IKS-12 spectrometer with replica was used for the research, with the infrared photomultiplier FEU-22 as the optically sensitive device. As_2Se_3 specimens were cleaned and polished to a thickness of from 3 mm to 40 μ, and were made in the authors' laboratory at the A. F. Ioffe Physico-Technical Institute in Leningrad. The results of the computation of the absorption coefficient for vitreous As_2Se_3 are given. The authors thank

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USSR

UDC: 621.315.592

KOLOMIYETS, B. T. et al, Fizika i tekhnika poluprovodnikov, vol 6, No 6, 1972, pp 1103-1107

V. P. Shilo and V. N. Knyazevskiy for synthesizing the glass and the crystal, and T. F. Mazets and K. D. Tsendin for their useful comments.

2/2

Acc. Nr: AP0038108 K Ref. Code: UR 0326

PRIMARY SOURCE: Fiziologiya Rasteniy, 1970, Vol 17, Nr 1, pp 83-90

ROLE OF PHYSIOLOGICALLY ACTIVE SUBSTANCES IN DORMANT AND GERMINATING PEACH SEEDS

Kolomiyets, I. A.; Parfenova, T. M.; Teplitskaya, Ye. V.

Central Botanical Garden, Ukr. SSR Academy of Sciences, Kiev

The permeability of the coats of peach (Persica vulgaris Mill.) seeds with respect to water and tha auxin and growth inhibitor content in the coats and embryos as depending on the growth conditions were studied. Considerable amounts of growth inhibitors were found in the coats and embryos of peach seeds. In the embryos the inhibitors were inactivated to a great extent as a result of soaking of the seeds. The remaining inhibitors do not hamper growth of isolated embryos but slow down division and growth of cells in the middle of the meristem and in the zones of primary differentiation and elongation of the stem. A result of this is dwarfness of the seedlings. Complete inactivation of growth inhibitors in the embryos can be attained by 30 day cold stratification. Dormancy of the inactive seeds is due to restricted uptake of water in the embryos. This can be ascribed to the presence in the inner coats (in the endospermal film and seed coat) of growth inhibitors blocking the enzyme activity during the initial period and at

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REEL/FRAME
19731158

02

AP0038108

a later period, after 30 days of stratification, to resistance of the seed coats to swelling of colloids. The coats possess a restricted extensibility and a high durability and exert a turgor counter-pressure on the embryo as it expands during absorption of water. This obstacle in peach seeds can be removed by 90 days of stratification when the wholeness of the endocarp is violated and the durability of the endospermal film and seed wall is greatly lowered.

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19731159

USSR

UDC 532.783

TSVETKOV, V. N., Corresponding Member of the USSR Academy of Sciences, RYUMTSEV, Ye. I., KOLOMIYETS, I. P., KOVSHIK, A. P., Leningrad State University imeni A. A. Zhdanov

"Concerning the Macroscopic Equivalence and Difference of Molecular Mechanisms of the Orienting Action of Electric and Magnetic Fields on Nematic Liquid Crystals"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 4, 1 Aug 73, pp 821-824

Abstract: The electric-to-magnetic susceptibility anisotropy ratios were measured by the crossed-field method on a frequency of $\nu = 7 \cdot 10^5$ for several liquid crystals, and the permittivities parallel and perpendicular to the axis of nematic order were determined by the method of capacitance on the same frequency. In addition, the diamagnetic anisotropy was measured on the same substances. The resultant experimental data show that anisotropy of retardation of molecular rotation reduces the dielectric anisotropy of positively anisotropic liquid crystals and increases the anisotropy of negatively anisotropic crystals. When the dipole moment is fairly high, dispersion may change the sign of electric susceptibility anisotropy in a crystal with positive dielectric anisotropy.

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USSR

UDC 548.0:532.783

RYUMTSEV, Ye. I., KOVSHIK, A. P., KOLOMIYETS, I. P., TSVETKOV, V. N.,
Physics Institute, Leningrad State University

"Anisotropy of Molar Refraction of Liquid-Crystal Alkoxybenzoic Acids"

Moscow, Kristallografiya, Vol 18, No 6, Nov/Dec 73, pp 1246-1249

Abstract: The prism refractor method is used to measure the indices of refraction of nematic and amorphic liquids of a homologous series of alkoxybenzoic acids. The values of molar refraction and its anisotropy are calculated for each homolog in the entire region of existence of the nematic phase. The resultant relations for refraction anisotropy as a function of the structure of the molecules are explained by the effect of flexibility -- a phenomenon which is well known for chain molecules.

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USSR

TsVETKOV, V. N. Corresponding Member of the Academy of Sciences of the USSR, KOLOMIYeTs, I. P., RYuMTsEV, Ye. I., and ALIYeV, S. M.

"A Rotating Magnetic Field as a Method of Determining the Diamagnetic Anisotropy of Nematic Liquid Crystals"

Moscow, Doklady Akademii Nauk SSSR, Vol 109, No 5, 11 Apr 73, pp 1074 - 1077

Abstract: A liquid crystal subjected to a rotating magnetic field which is sufficiently strong and not rotating too rapidly experiences mechanical forces due to the rotation of the axis of nematic order in step with the magnetic field but lagging at some angle. Under ideal conditions it would be possible to determine the diamagnetic anisotropy by knowing the moment of mechanical rotation and the lag angle for a single value of magnetic field rotational speed. Attempts have been made to do this with a torsion balance, based on the fact that the mechanical moment reaches its maximum when the lag angle is equal to $\frac{\pi}{4}$.

This procedure is subject to errors because the macroscopic uniformity of the substance breaks down before the lag angle reaches this value. The authors have supplemented the procedure by observing the liquid crystal with polarized light. At extremely slow rotations the polarization is established so that the crystal is dark. As the lag angle increases, the light is permitted to pass; it is

USSR

TsVETKOV, V. N., et al., Moscow, Doklady Akademii Nauk SSSR, Vol 109, No 5, 11 Apr 73, pp 1074 - 1077

extinguished by rotating the polarizing filters.

Both mechanical and optical measurements indicate that reliable values of lag can be determined only when the rotational speed is relatively low, before vortex effects become significant. With this restriction, the simultaneous measurement of torque moment and phase lag provides a relable method of determining diamagnetic anisotropy.

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1/2 008 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--COMPLEXES OF IRON,III, WITH ALPHA ETHOXYPROPIONIC ACID IN SOLUTION -U-

AUTHOR-(02)-KOLOMIYETS, L.L., PYATNITSKIY, I.V.

COUNTRY OF INFO--USSR

SOURCE--UKR. KHIM. ZH. 1970, 36(4), 375-9

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IRON COMPOUND, COMPLEX COMPOUND, PROPIONIC ACID, OXYGEN COMPOUND, HETEROCYCLIC OXYGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0900 STEP NO--UR/0073/70/036/004/0375/0379

CIRC ACCESSION NO--AP0137928

UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137928

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IONIZATION CONST. OF ALPHA ETHOXYPROPIONIC ACID (I) IS 2.2 TIMES 10 PRIME NEGATIVE4. A METAL INDICATOR METHOD WITH SULFOSALICYCLIC ACID AS AN INDICATOR INDICATES THAT FE PRIME3 POSITIVE FORMS A 1:1 COMPLEX, INSTABILITY CONST. 1.2 TIMES 10 PRIME NEGATIVE3, AT PH 2 AND A 1:2 COMPLEX, INSTABILITY CONST. 2.3 TIMES 10 PRIME NEGATIVE6, AT PH 3 WITHI. AT PH 3.5, NO COMPLEX FORMS, BUT FE(OH) SUB3 BEGINS TO PPT. THIS IS IN CONTRAST WITH LACTIC ACID WHICH FORMS A SOL. COMPLEX WITH FE PRIME3 POSITIVE WHICH IS STABLE TO PH 8. THIS IS ATRRIBUTED TO THE FORMATION OF A MORE STABLE COMPLEX OF STRUCTURE II. FACILITY: KIEV. GOS. UNIV. IM. SHEVCHENKO, KIEV, USSR.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--ANION EXCHANGE SEPARATION OF ALUMINUM AND GALLIUM FROM INDIUM, IRON, AND COPPER USING LACTIC ACID -U-

AUTHOR-(02)-PYATNITSKIY, I.V., KOLOMIYETS, L.L.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 479-81

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALUMINUM, GALLIUM, INDIUM, IRON, COPPER, LACTIC ACID, ANION EXCHANGE RESIN, CHEMICAL SEPARATION/(U)AV17 ANION EXCHANGER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1066 STEP NO--UR/0075/70/025/003/0479/0481

CIRC ACCESSION NO--AP0123059

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123059

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD WAS DEVELOPED FOR THE ION EXCHANGE SEPN. OF AL AND GA FROM IN, FE, AND CU UNDER STATIC CONDITIONS. THE NEG. CHARGED LACTATE COMPLEXES OF THE ABOVE METALS ARE ABSORBED FROM WEAKLY ACID SOLNS. BY AV-17 ANION EXCHANGER IN THE OH PRIME NEGATIVE FORM; AL AND GA CAN BE ELUTED WITH A NAOH SOLN. AS ALUMINATES AND GALLATES. THE METHOD WAS TESTED ON ARTIFICIAL MIXTS. AND ON STD. SAMPLES OF AL BRONZE AND SILICATES. DISSOLVE 0.02-0.03 G BRONZE IN 5 ML 1:15 HNO SUB3 WHILE HEATING, COOL, DIL. TO 100 ML WITH H SUB2 O. TO A 10 ML ALIQUOT ADD 3 ML 1M LACTIC ACID, ADJUST TO PH 4 AND THEN DIL. TO 25 ML WITH H SUB2 O. SHAKE 10 ML OF THIS SOLN. WITH 0.5-0.7 G AV-17 ANION EXCHANGER FOR 15 MIN, THEN ADD 1 ML 10PERCENT NAOH AND SHAKE FOR 2 HR. FILTER, WASH WITH H SUB2 O, ADJUST THE FILTRATE TO PH 4 FOR AL DETN., AND PH 3 FOR GA DETN. WITH HNO SUB3, DIL. TO A FIXED VOL. WITH H SUB2 O AND DET. AL OR GA PHOTOMETRICALLY BY USING 8,HYDROXY,QUINOLINE AT 360 NM. WHEN DETG. AL AND GA IN SILICATES FUSE 1.2-1.5 G WITH NA SUB2 CO SUB3, LEACH WITH HCL, FILTER, AND THEN PPT. AL, FE, AND TI WITH NH SUB4 OH. FILTER, DISSOLVE THE PPT. IN 25 ML 2N HNO SUB3, DIL. TO 50 ML WITH H SUB2 O AND CONTINUE ON 1 ML ALIQUOT AS ABOVE. FACILITY: KIEV STATE UNIV., KIEV, USSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--COMPLEXES OF IRON WITH LACTIC ACID IN SOLUTIONS -U-

AUTHOR-(02)-PYATNITSKIY, I.V., KOLOMIYETS, L.L.

COUNTRY OF INFO--USSR

SOURCE--UKR. KHIM. ZH. 1970, 36(1), 79-86

DATE PUBLISHED----------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANOIRON COMPOUND, ORGANIC COMPLEX COMPOUND, LACTIC ACID, TITANIUM COMPOUND, IRON COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2206 STEP NO--UR/0073/70/036/001/0079/0086

CIRC ACCESSION NO--AP0125786

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125786

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CU(II), AL(III), AND ZR(IV) ARE NOT PPTD. BY BASE IN THE PRESENCE OF LACTATE ION(L). THE PH OF PPTN. IS GREATLY INCREASED BY THE PRESENCE OF LACTATE FOR FE(III), TI(IV), AND BI(III). BY USING ISOMOLAR SERIES, SHIFTS IN EQUIL. WITH CONCN., AND METAL INDICATOR STUDIES (SULFOSALICYLIC ACID (SSAL) WAS USED AS THE INDICATOR), THE FOLLOWING COMPLEXES WERE ESTABLISHED (PH RANGE, FORMULA, AND INSTABILITY CONST. GIVEN: 2, ((MECHOHCO SUB2)FE) PRIME2 POSITIVE, (2.7 PLUS OR MINUS 0.8) TIMES 10 PRIME NEGATIVE4; 4-5, FEL SUB2 PRIME NEGATIVE (7.1 PLUS OR MINUS 0.4) TIMES 10 PRIME NEGATIVE27; 4-7, FE(SSAL)(L), (3.7 PLUS OR MINUS 0.2) TIMES 10 PRIME NEGATIVE26. FACILITY: KIEV. GOS. UNIV. IM. SHEVCHENKO, KIEV, USSR.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--SPECTROGRAPHIC ANALYSIS OF SLAG MELTS ON THE DFS10 QUANTOMETER USING VARIOUS LIGHT SOURCES -U-

AUTHOR-(03)-NIKITINA, O.I., ANTIPENKO, L.L., KOLOMIYETS, L.P.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(2), 175-6

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--SLAG, CHEMICAL ANALYSIS, SPECTROGRAPHIC ANALYSIS, ELECTRIC GENERATOR/(U)IG3 VOLTAGE GENERATOR, (U)DFS10 QUANTOMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1841 STEP NO--UR/0032/70/036/002/0175/0176

CIRC ACCESSION NO--AP0118805

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R001401420005-4"

2/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118805

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A LOW VOLTAGE SPARK (40 MUF, 500 MUH) WAS USED IN THE ANAL. OF SLAG MELTS AND THE RESULTS WERE COMPARED WITH THOSE OBTAINED BY A HIGH VOLTAGE GENERATOR IG-3 (0.01 MUF, 0.55 MUH). THE AT. LINES SI I 288.1, AL I 396.1, MG I 518.3, FE I 440.4 NM GAVE BETTER REPRODUCIBILITY BY USING THE ARC, WHILE CA II 325.8 AND 370.6, MN II 293.3 AND 482.3, MG II 280.2 WAS BETTER WITH THE LOW VOLTAGE SPARK. THE RESULTS CONFIRMED THE FEASIBILITY OF USING A LOW VOLTAGE SPARK FOR SLAG ANAL.

UNCLASSIFIED

USSR

UDC: 681.333:519.2

PETUKHOV, V. I., KOLOMIYETS, O. M., BERKUTOV, A. M., PROSHIN, Ye. M., SADOVSKIY, G. A., Ryazan Radio Engineering Institute

"A Static Analyzer"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 18, 1970, Author's Certificate No 271911, Filed 30 Dec 68, p 115

Abstract: This Author's Certificate introduces a static analyzer which contains an analysis level discriminator, a controlled step voltage generator, a generator which produces pulses to fill the intervals corresponding to the dwell period of a realization higher (lower) than the given level of analysis, an analysis time key circuit, a pulse frequency divider, a filler pulse counter, and a unit which introduces the number for the initial counter setting. As a distinguishing feature of the patent, the analyzer is designed for simplification in determining numerical characteristics. It contains an inhibiting logic circuit with the output of the frequency divider connected to one of its inputs while the second input is connected to the output of the pulse counter, whose set input is connected to the unit for introducing a number into the

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USSR

PETUKHOV, V. I., et al, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 18, 1970, Author's Certificate No 271911 Filed 30 Dec 68, p 115

counter. The output of the inhibiting logic circuit is connected to the input of the controlled step voltage generator, whose output is connected to the analysis level discriminator.

USSR

UDC 617-089.843-06:616-021.2

VISHNEVSKIY, A. A., KOLESNIKOV, I. S., BALLYUZEK, F. V., PORTNOY, V. F., KOSTIN, E. D., PECHERSKIY, V. I., KOLOMIYETS, S. G., and KHUNDANOV, L. L., Institute of Surgery imeni A. V. Vishnevskiy Academy of Medical Sciences USSR, and Hospital Surgery Clinic Military Medical Academy imeni S. M. Kirov

"Causes of Early Functional Incompetence of Allotransplants"

Moscow, Eksperimental'naya Khirurgiya i Anesteziologiya, Vol 1, Jan/Feb 71, pp 3-8

Abstract: Causes and effects in postoperative developments were analyzed, which enabled us to systematize the factors responsible for early functional incompetence of a transplanted organ. Factors in four etiological categories were considered: 1. Organization and Tactics: each of availability of funds for establishing transplantation centers; lack of the required equipment, instruments, and drugs; absence of a central list of potential recipients; and inadequate cooperation between transplantation surgeons and reanimation specialists.

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USSR

VISHNEVSKIY, A. A., et al., Eksperimental'naya Khirurgiya i Anesteziologiya, Vol 1, Jan/Feb 71, pp 3-8

2. Physiological Anatomy: poor estimation of the anatomical and physiological reserves of the transplant; and shortcomings in surgical techniques. 3. Pathophysiology: deteriorated state of the recipient; poor health of the donor; injury to the transplant; excessive functional load on the transplant; and inadequate prevention of operative and postoperative complications. 4. Immunobiology: poor matching of donor and recipient; high immunological potential in the recipient; inadequate prevention of stimulation of immunological reactions in the recipient; and mistakes committed in immunosuppressive therapy.

1/2 021 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--SALIVARY SECRETION IN GASTRIC AND DUODENAL ULCER -U-

AUTHOR--KOLOMIYETS, S.P.

K

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 4, PP 118-121

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SALIVARY GLAND, SECRETION, STOMACH, DIGESTIVE SYSTEM DISEASE, DUODENUM, REFLEX

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1697 STEP NO--UR/0475/70/000/004/0118/0121

CIRC ACCESSION NO--AP0129067

UNCLASSIFIED

2/2 021 UNCLASSIFIED

CIRC ACCESSION NO--AP0129067 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SALIVARY SECRETION WAS DETERMINED IN 56 PATIENTS WITH GASTRIC AND DUODENAL ULCER AND 24 HEALTHY PERSONS. PATIENTS WITH ULCER DISEASE SHOWED A HIGHER SPONTANEOUS SECRETIONT HAN HEALTHY PERSONS. THE CHARACTER OF SALIVARY AND GASTRIC SECRETION TO MECHANO AND CHEMOSTIMULATION OF GASTRIC RECEPTORS WAS DISTORTED. FOLLOWING TREATMENT OF THE MAIN DISEASE THE AMOUNT AND CHARACTER OF SALIVARY SECRETICN APPROACHES NORMAL VALUES, SUGGESTING THAT THE DISORDERS OF SALIVARY SECRETION IN ULCER ARE CAUSED BY NEURO REFLEX AND HUMORAL REGULATICN DISORDERS. FACILITY: TSENTRAL'NOGO INSTITUTA USOVERSHENSTVOVANIYA VRACHEY KIYEV MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

USSR

UDC 621.374.572.51.001.57

TOLSTOUKHOV, A. S., KOLOMIYETS, V. D.

"Synthesis of Inverter Structures Based on Controlled Semiconductor Devices"

Avtomatiz. proyektir. v elektron. Resp. mezhved. nauch.-tekhn. sb. (Design Automation in Electronics. Republic Interdepartmental Scientific and Technical Collection), vyp. 2, Kiev, "Tekhnika", 1970, pp 46-52

Abstract: A procedure is outlined for synthesizing inverter structures from controlled semiconductor devices operating in the switched mode with respect to a given shape of output signal. Seven illustrations, bibliography of nine titles.

1/1

Converters

USSR

UDC 621.314.14

GRAFOV, V.P., KOLOMIYETS, V.D., TOLSTOUKHOV, A.S., USIKOV, V.A.

"On The Principles Of Construction Of A Static Converter Using Semiconductor Devices"

Vestn. Kiyev. politekhn. in-ta. Ser. radioelektron. (Bulletin Of The Kiev Polytechnical Institute. Radioelectronics Series), 1970, No 7, pp 106-108 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B460)

Translation: The main possibilities are considered for construction of the circuits of autonomous inverters, which include a device for regulation of current or voltage, filters, systems for protection, monitoring, etc. Various combinations are compared of electronic and electromagnetic elements in different functional units of the circuit. At present the most common is the synthesized electronic and electromagnetic construction of static transistorized converters. 1 table. I.A.

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USSR

UDC: 519.2

KOLOMIYETS, V. G., TSIDYLO, K. V.

"Random Oscillations of Quasilinear Systems With Delay and Impulse Action"

V sb. Differents.-raznostn. uravneniya (Differential Difference Equations --collection of works), Kiev, 1971, pp 17-26 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V79)

Translation: The equation

$$\ddot{x}+\omega^2 x=\varepsilon f+\sqrt{\varepsilon}\,g\,\dot{\xi}+\varepsilon h(x,\dot{x})\,\delta(x-\dot{x})$$

is considered, where ξ is a standard Wiener process, ε is a small parameter, f and g are polynomial functions of $\cos\omega t$, $\sin\omega t$, $x(t)$, $\dot{x}(t)$, $x_\tau=x(t-\tau)$, $\dot{x}_\tau=\dot{x}(t-\tau)$. After substituting $x=a\cos(\omega t+\theta(t))$, $y=-a\omega\sin(\omega t+\theta(t))$ the authors get a system relative to $a(t), \theta(t)$.. Since $a(t)$ and $\theta(t)$ change slowly, when $\tau\ll\frac{2\pi}{\omega}$ delay can be disregarded. Therefore the process $(\theta(t), a(t))$ is a Markov diffusion process, which means that the Kolmogorov equation can be written for the combined distribution density function $W(t,a,\theta)$ of the amplitude and phase. By next applying the method of averaging, the authors get an equation for $W(t,a,\theta)$ which describes a homogeneous diffusion process whose coefficients depend only on a.

1/2

USSR

KOLOMIYETS, V. G., TSIDYLO, K. V., Differents.-raznostn. uravneniya, Kiev, 1971, pp 17-26

In the resonance case ($\omega = \nu$), after introducing detuning we get an averaged Kolmogorov equation whose coefficients now depend on α and θ.

As an example, the equation

$$\ddot{x} + x = \varepsilon\gamma x\delta(x) + \sqrt{\varepsilon}\sigma x_\tau \xi + \varepsilon(-\dot{x} + \alpha(1 + \beta x_\tau - x_\tau^2)\dot{x}_\tau)$$

is considered. The stationary amplitude distribution is found at small τ, and in particular the most probable amplitude. M. Benderskiy.

2/2

USSR

UDC 517.917

KERZYUK, V. I., KOLOMIYETS, V. G.

"Investigation of Nonlinear Stochastic Systems With Slowly Changing Parameters"

Kiev, Matematicheskaya Fizika, No. 10, 1971, pp 28-34

Abstract: The asymptotic methods of nonlinear mechanics and the Kolmogorov-Fokker-Planck equations are applied to studies of nonstationary modes in nonlinear oscillatory systems with slowly changing parameters under random actions. It is noted that the problem of studying nonstationary phenomena arising under a change in the mass, frequency, and other parameters of a nonlinear oscillatory system is frequently encountered in many current problems in physics and engineering. The random actions are assumed to be of the "white noise" type. Equations are derived which can describe the random oscillations of a vacuum-tube oscillator, and fractional oscillations in the system are studied.

1/1

USSR

KERZYUK, B. I., KOLOMIYETS, V. G.

"Study of Nonlinear Stochastic Systems with Slowly Changing Parameters"

Mat. Fizika. Resp. Mezhved. Sb. [Mathematical Physics, Republic Interdepartmental Collection], No 10, 1971, pp 28-34 (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V91 by the author's).

Translation: The main purpose of this work is to use asymptotic methods of nonlinear mechanics and the method of the Kolmogorov-Fokker-Plank equations for problems of investigation of unstable random modes in nonlinear oscillating systems with slowly changing parameters with random "white noise" perturbations.

1/1

USSR

UDC: 519.24

MITROPOL'SKIY, Yu. A., KOLOMIYETS, V. G.

"Use of Probabilistic and Asymptotic Methods in the Theory of Oscillations of Stochastic Systems"

Mat. fizika. Resp. mezhved. sb. (Mathematical Physics. Republic Interdepartmental Collection), 1971, vyp. 9, pp 89-95 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V399)

Translation: A brief survey is presented of research done in the department of mathematical physics and the theory of nonlinear oscillations of the Institute of Mathematics of the Academy of Sciences of the Ukrainian SSR in the last few years. Bibliography of ten titles. Authors' abstract.

1/1

USSR

UDC 519.2:62-50

KOLOMIYETS, V. G.

"Principle of Averaging for Stochastic Systems With After-Effects"

Kiev, Tr. 5-y Mezhdunar. konferentsii po nelineyn. kolebaniyam. (Proceedings of the Fifth International Conference on Nonlinear Vibrations), Vol 1, 1970, pp 304-310 (from Referativnyy Zhurnal -- Matematika, No 6, June 71, Abstract No 6V233, by R. Liptser)

Translation: The work consists mainly of the formulation of the following theorem: Suppose x(t) is the solution of the equation

$$\frac{dx(t)}{dt} = \varepsilon X(t, x(t), x(t-\Delta), \omega); \quad (1)$$

where ε is a small parameter, Δ is the lag, $\omega \in \Omega$, (Ω, F, P) is the probability space, $t \in [0, \infty)$. Suppose that the following conditions are satisfied:

1)

$$|X(t, x, y, \omega)| \leq M < \infty, \quad |x| + |y| < c < \infty,$$
$$t \in [0, \infty), \quad \omega \in \Omega;$$

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USSR

KOLOMIYETS, V. G., Tr. 5-y Mezhdunar. konferentsii po nelineyn. kolebaniyam., Vol 1, 1970, pp 304-310

2) $|X(t, x', y', \omega) - X(t, x'', y'', \omega)| < \lambda(|x' - x''| + |y' - y''|)$, $\lambda < \infty$

and does not depend on $\omega \in \Omega$, or on x, y, if and only if $|x| + |y| \leq c < \infty$;

3) $\frac{1}{T}\int_0^T X(t, x, y, \omega)\, dt \to X_0(x, y)$ with a probability of unity as $T \to \infty$, $|x| + |y| \leq c < \infty$,

$$\lim_{T \to \infty} M\left|\frac{1}{T}\int_0^T X(t, x, y, \omega)\, dt - X_0(x, y)\right| = 0.$$

Then the solution of equation (1) $x(t, \varepsilon, \omega)$ when $t \in [0, L/\varepsilon]$, $0 < L < \infty$, tends, on the average, as $\varepsilon \to 0$ to the solution $\xi(t, \varepsilon)$ of the equation

$$\frac{d\xi(t, \varepsilon)}{dt} = \varepsilon X_0[\xi(t, \varepsilon), \xi(t - \Delta, \varepsilon)],$$

$$\xi(0, \varepsilon) = x(0, \varepsilon).$$

2/2

UDC 517.917:517.946:519.2

USSR

MITROPOL'SKIY, Yu. A., KOLOMIYETS, V. G., Institute of Mathematics, Academy of Sciences UkrSSR

"Averaging in Stochastic Systems"

Kiev, Ukrainskiy Matematicheskiy Zhurnal, Vol. 23, No. 3, 1971, pp 318-345

Abstract: It is pointed out that although Kolmogorov-Fokker-Planck equations are an effective method of exciting random processes in nonlinear oscillating systems, it is difficult in the majority of cases to subject these equations to analytical solution, with the exception of the particular case of linear systems. The application of the principle of averaging is said to yield interesting and important results for quasilinear systems containing a small parameter. The Kolmogorov-Fokker-Planck equations in this case yield applicable results if the initial equations considered describing the random oscillatory process can be reduced to a standard form. The averaging can be carried out in either the most standard equations, which are then easily analyzed with the aid of Kolmogorov-Fokker-Planck equations, or in a KFP equation which also has a standard form.

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USSR

MITROPOL'SKIY, YU. A., and KOLOMIYETS, V. G., Ukrainskiy Matematicheskiy Zhurnal, Vol 23, No 3, 1971, pp 318-345

The essence of the method of KFP equations and the basic assumptions of the theory of differential equations with random functions are reviewed, starting with the first results obtained by I. I. Gikhman on applying the principle of averaging for stochastic principles and also giving later developments by R. L. Stratonovich, R. Z. Khas'minskiy, I. Vrkos, and the authors.

2/2

USSR

UDC: 519.2

KOLOMIYETS, V. G., KORENEVSKIY, D. G.

"Investigation of Nonlinear Oscillations in a First Order System With Random Delay"

Tr. Seminara po teorii differents. uravneniy s otklonyayushch. argumentom. Un-t druzhby narodov imeni Patrisa Lumumby (Works of the Seminar on the Theory of Differential Equations With Deviating Argument. University of Friendship Between Nations imeni Patrice Lumumba), 1972, 8, pp 100-108 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V120 [authors' abstract])

Translation: A study is made of the perturbation of periodic motions of a quasilinear system by random delay. In particular, an investigation is made of the behavior of stationary density of the joint distribution of the amplitude and phase of oscillations by means of the asymptotic Krylov-Bogolyubov method and the method of the Fokker-Planck-Kolmogorov equation.

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K

USSR

KISELEVA, N. K., and [illegible], V. I. [illegible] Technical Institute [illegible] A. F. Ioffe

"Oxidation as a Method of Study[illegible] Semiconductor Crystals"

Moscow, Zavodskaya Laboratoriya, No 10, 1970, pp 1204-1207

Abstract: A study was made of selective oxidation as a method of investigating semiconductor crystals. [illegible] solid solutions and [illegible] were used in the study. The method employs two phenomena -- the difference in oxidation rates of crystals with different composition or crystallographic orientation, and the interference of light in thin films of oxide on the surface of the specimen. If a polished surface of an irradiated crystal is subjected to oxidation until the formation of an oxide film 400-5000 Å thick, regions of variable composition show up on this surface, and the film thickness will vary in these regions. Marked oxidation of InAs commences at T = 350° C, and at 500-600° C for GaSb. It is shown that oxidation is an effective method of revealing inhomogeneities. Specific examples are presented of the use of selective oxidation in studying the structure of [illegible] Sb-GaSb heterocrystals during crystallization while solid solutions are being pulled from a melt by the Chokhralsky method.

1/1

KOLOMIYEVSKIY, M. L.

MEDICINE

So: JPRS 55100
4 Feb 72

UDC 616.13-004.6-036.15-053.82-091.8

HISTOPATHOLOGIC SUBSTRATE OF ATHEROSCLEROSIS TRANSPIRING WITHOUT SYMPTOMS IN YOUNG PEOPLE

[Article by M. L. Kolomiyevskiy; Moscow, Kommicheskaya Biologiya i Meditsina, Russian, Vol 5, No 6, 1971, submitted for publication 17 June 1969, pp 65-69]

Abstract: The histologic substrate of atherosclerosis transpiring without symptoms in a young man (24 years old) is histologic elements typical of active atherosclerosis during different stages in its development from lipoidosis to atherosclerotic patches. The occurrence of atherosclerotic elements at different developmental stages demonstrates that in young people the disease has a wavelike development. This also indicates a necessity of preventing the progress and inducing a reversal of the atherosclerotic process by various prevention and therapeutic measures. It is also suggested that hazardous atherosclerotic forms be diagnosed in one's lifetime.

A large number of studies have been devoted to atherosclerosis and its manifestations in youth (M. I. Khvilivitskiy and Ye. V. Kalinina; D. G. Abramovich; Gertler and White; Dufek; Hochrein and Schleicher; Crauford, et al.). A number of investigations have revealed that atherosclerosis occurs extensively among flight personnel (Yu. N. Tokarev and E. M. Panova; Hinenz and Steinbridge, and others).

The atherosclerosis problem is of particular importance in space medicine because a latent coronary circulation inadequacy threatens the cosmonaut with a sudden in-flight loss of work capacity and can result in his death.

The essence and peculiarities of the histopathologic substrate of atherosclerosis in youth has not been finally clarified. On the basis of a study of 1,000 patients in the age group up to 40 years Hochrein and Schleicher define a special form of vascular damage in coronary disease in youth. Crauford does not find any weighty reasons for this.

USSR UDC 621.378.35

BOGDANKEVICH, O.V., ZVEREV, M.M., KOLOMIYSKIY, A.N., PSCHENOV, A.N., VASIL'YEV, B.I.

"Multielement Semiconductor Laser Of The 'Emitting Mirror' Type"

Kvantovaya elektronika, Moscow, No 5, May 71, pp 95-96

Abstract: The construction and some characteristics are described of a multielement laser of the emitting mirror type. A high-voltage pulse electron gun was used for pumping of the laser, with a beam energy of 108 kev and a current density of 20 a/cm^2. The polished plane-parallel disks 0.2-mm thick used as the working medium were cut out of single crystals of n-type conductivity gallium-arsenide doped with tellurium to a concentration of(1--2) . 10^{18} cm^{-3}. The generation power increases linearly with an increase of the cross section of the multielement target. A power of 28 kw is attained with a crystal with a 1 cm^2 area. The halfwidth of the directivity pattern is 7°, and the generation spectrum consists of several lines corresponding to the modes of the Fabry--Perot resonator. Received by editors, 28 Apr 71. 2 fig. 6 ref.

1/1

1/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--MATERIALS FOR THE STUDY OF CHORDOMA INNERVATION -U-

AUTHOR-(03)-SVIGUN, V.S., KOLOMIYTSEV, A.K., YATSENKO, V.P.

COUNTRY OF INFO--USSR

SOURCE--ORTOPEDIYA, TRAVMATOLOGIYA I PROTEZIROVANIYE, 1970, NR 5, PP 57-60

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BONE DISEASE, TUMOR, SURGERY, NERVOUS SYSTEM, ANATOMY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0733 STEP NO--UR/9115/70/000/005/0057/0060

CIRC ACCESSION NO--AP0131328

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0131328
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WITH AID OF DIVERSE METHODS OF IMPREGNATION AND STAINING THE AUTHORS HAVE STUDIED THE SACROCOCCYGEAL CHORDOMAS AND THE ADJACENT TISSUES OPERATIVELY ABLATED IN 10 PATIENTS. IN ALL THE CASES, A CLOSE CORRELATION WAS FOUND BETWEEN THE CONSTITUTING COMPONENTS OF THE TUMOR AND THE NEWLY FORMED NERVE ELEMENTS. THESE WERE ECPECIALY ABUNDANT IN THE CAPSULE SURROUNDING THE CHORDOMA WHERE, PARALLELLY WITH NERVE TRUNKLETS AND SINGLY DISPOSED AXONS, NUMEROUS PRIMITIVELY ARRANGED TERMINAL DEVICES OF THE TYPE OF LOOPS, BUTTONS OR NETWORK, AS WELL AS MORE INTRICATELY ARRANGED CLUSTER OR TENDRIL TIKE ENDINGS HAVE BEEN DETECTED. THE THICKNESS OF CHORDOMA WAS FOUND TO BE PENETRATED ALONG THE CONNECTIVE TISSUE STRATA BY NUMEROUS NERVE FIBERS LYING SIOLATELY OR FORMING BUNDLES DISPOSED AMONG CELLS OF THE TUMOR. THE TUMOR NODES CONTAIN TWO TYPES OF NERVE ENDINGS. SOME OF THEM ARE REPRESENTED BY LOCALIZED ARBORIZATIONS, THE OTHER BY PRIMITIVE DEVICES OF THE TYPE OF LOOPS, BUTTONS OR SMALL BULGINGS, IMMEDIATELY CONTACTING WITH CELLS OF THE CHORDOMA. FACILITY: KIEV. INSTITUTA EKSPERIMENTAL'NOY I KLINICHESKOY ONKOLOGII AND KAFEDRY GISTOLOGII I EMBRIOLOGII KIEV, MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

USSR

UDC 621.398.654.94

KOLOMIYTsEV, A. K. and LAGUNOVICh, Ye. F., Donets Scientific Research and Design Institute for the Automation of Mining Equipment

"A Device for Monitoring Communication Lines"

USSR Author's Certificate, Class H 04 j 1/16, No 341171, filed 25 Dec 67, published 17 July 72 (from RZh-Avtomatika Telemechanika i Vychislitel'naya Tekhnika, No 3, Mar 73, Abstract No 3 A352P)

Translation: A device is proposed for monitoring communication lines in wire remote control systems of mechanized mining. The device contains a control panel and programmed unit, pulse divider, a time selection unit and decoder, divider cells on the control panels, lines for signals and control commands, and a communication line monitoring unit. In order to monitor the communication line for breaks without increasing the time cycle of the remote control, control signal shapers placed between the adjacent cells of the distributor are connected through the signal and control command line to the first input of the monitoring unit, the second input of which is connected to the time selection unit. The output of the monitoring unit is connected through a switch to one of the inputs of the decoder. One illustration.

1/1

USSR UDC 669.721.472(088.8)

YELIN, N. M., BURDAKOV, YU. M., KOLOMIYTSEV, A. V., CHALABAYEV, I. A., KOLYADZIN, A. A., TSIDVINTSEV, G. V., and BIBIK, G. P., Ust'-Kamenogorsk Titanium-Magnesium Combine imeni 50th Anniversary of October

"Vacuum Ladle"

USSR Author's Certificate No 254104, filed 28 Nov 66, published 5 Jan 70 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11 G139 P)

Translation: A design is proposed for vacuum ladle which consists of a lock and a tap hole. To simplify the servicing of the magnesium electrolytic reduction cells, it is equipped with a teeming device, which is made in the shape of a branch connection with bottom closing device mounted on the lid of the ladle.

1/1

USSR UDC 669.721.472(088.8)

BURDAKOV, YU. M., KOLOMIYTSEV, A. V., TRET'YAK, S. D., and CHALABAYEV, I. A.

"Method for Protecting Anodes of a Magnesium Electrolytic Reduction Cell With Overhead Anode Lead"

USSR Author's Certificate No 259397, filed 15 Apr 68, published 28 Apr 70 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11 G136 P)

Translation: A method is proposed for protecting anodes of a magnesium electrolytic reduction cell with top introduction of anodes by teeming with a refractory material. In order to increase the anode's life, the teeming of the anode block is carried out over the entire perimeter with refractory low-pore concrete, and open grooves are made between individual bricks of the block. The grooves are also filled with refractory concrete.

1/1

USSR

YEPISHEVA, S. M., KOLOMIYTSEV, M. A., CHARBADZE, L. A., Physics Institute of the Georgian SSR Academy of Sciences

"Ratio of the Corrosion Products of 1Kh18N9T Stainless Steel in Water and Ion-Exhange Resins of the Desalinization Filters of the Primary Circuit of the IRT Nuclear Reactor"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, No 3, 1971, pp 597-599

Abstract: A study was made of the iron, chromium, and nickel content in individual sections of the 1Kh18N9T stainless steel primary cooling circuit of the IRT nuclear reactor of the Physics Institute of the Georgian SSR Academy of Sciences to discover the causes of increased concentration of these impurities. Resin samples taken from the ion-exchange filters of the circuit were analyzed, and the content of the mentioned elements was calculated in the total volume of the heat-exchange agent. The results show that the absorption of metal cations by the KU-2 resin is selective -- iron and nickel are primarily sorbed. In AV-17 resin which creates an alkaline environment in the filter (pH ~ 9), separation of the insoluble hydroxides and mechanical holding of particles of them takes place. As a result of the amphoteric nature of chromium, its absorption on the anion-exchange resin is so high that it exceeds the cation absorption by 2-3 times. As is obvious, the determining factor in the overall

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USSR

YEPISHEVA, S. M., et al., Soobshcheniya Akademii Nauk Gruzinskoy SSR, No 3, 1971, pp 597-599

balance for iron and nickel is the content in the cation-exchange resin whereas for chromium, on the contrary, it is the content in the anion-exchange resin. Thus, the cause of the apparent relatively high concentration of metals present as steel additives in the water of the primary loop is the selectivity in the absorption of the cations by the ion-exchange resins. In the overall balance of the system the actual contents of the iron, chromium, and nickel are the same as for the initial steel, indicating uniform elution of the stainless steel components during corrosion.

2/2

USSR

UDC: 669.3:539.67

POSTNIKOV, V. S., SHARSHAKOV, I. M. and KOMAROV, V. G., Voronezh Polytechnic Institute

"Internal Friction in Single Crystals of Copper-Aluminum-Nickel Alloys"

Sverdlovsk, Fizika metallov i metallovedeniye, Vol 33, No 1, Jan 72, pp 222-224

Abstract: The purpose of this paper was to analyze the behavior of internal friction during thermoelastic $\beta \rightleftarrows \gamma'$ martensite transformation as well as the to study the effect of deformation and quenching rate on certain kinetic characteristics of transformations in Cu-Al-Ni alloys. Use was made of specimens grown by the Bridgeman method in containers from spectrally pure graphite in an argon atmosphere. It appears that the temperature position of the peak of the internal friction phase depends on the quenching rate and tempering time at 200-300°C. A decrease of the quenching rate is followed by peak displacement toward higher temperatures, i.e., temperature displacement at the beginning of both direct and reverse

USSR

POSTNIKOV, V. S., et al, Fizika metallov i metallovedenive, Vol 33, No 1, Jan 72, pp 222-224

transformations. At a cooling rate of 2-3 deg/sec, the martensite transformation is inhibited. Metallographic analysis indicates the emergence of various quenching-generated structures due to changes in the cooling rates. A increase in the order of magnitude may lead to marked changes in transformation temperatures. (2 illustrations, 8 bibliographic references).

2/2

USSR

UDC 535.34-15

BERTSEV, V. V., BULANIN, M. O., and KOLOMIYTSEV, T. D.

"Infrared Spectra of Cryosystems. I. Linear Molecules"

Leningrad, Optika i Spektroskopiya, Aug 73, pp 277-282

Abstract: Consideration is given to the possibilities of employing the spectroscopy of low-temperature condensed systems (cryosystems) for obtaining new information on the spectra and force field of molecules.

Liquefied gases such as argon, oxygen, and nitrogen are more inert than all the solvents usually employed in infrared spectroscopy. They are transparent in a wide spectral range and, consequently permit observation of the spectra of greatly diluted solutions in large optical layers. This compensates for the main drawback of liquefield gases as a solvent, namely their low solvent action. The spectroscopy of cryosystems is a valuable means for research, particularly in cases where it is not possible to resolve the fine rotational structure of the oscillatory bands.

Measurements were taken of the frequencies, half-widths, and intensities of bands in the infrared spectra of linear molecules (CO_2, COS, N_2O, and CS_2) in solutions of O_2 and Ar at 90°K, and a comparison was conducted with spectra in the gas phase. 5 tables. 14 references.

1/1

1/2 025 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--THE EFFECT OF THE TRACE ELEMENTS COMPOSITION IN RATIONS ON THE ACTIVITY OF SOME BONE TISSUE ENZYMES IN EXPERIMENTAL ANIMALS -U-

AUTHOR-(03)-KOLOMIYTSEVA, M.G., VOROBYEVA, A.M., RADOVSKIY, V.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY PITANIYA, 1970, NR 2, PP 57-62

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIET, BONE, ENZYME ACTIVITY, PHOSPHOTASE, INHIBITION, COPPER, MANGANESE, ZINC, TRACE ELEMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/1641 STEP NO--UR/0244/70/000/002/0057/0062

CIRC ACCESSION NO--AP0101696

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R001401420005-4"

2/2 025 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0101696

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STATISTICALLY PROCESSED RESULTS OF OBSERVATIONS HELPED ASCERTAIN THE INHIBITING EFFECT OF COPPER AND THE ACTIVATING INFLUENCE OF MANGANESE AND ZINC IONS ON THE ACTIVITY OF THE OSTEOTISSULAR ALKALINE PHOSPHATASE. WITH REGARD TO CYTOCHROMOXIDASE IN THE BONE TISSUE COPPER AND MANGANESE APPEAR AS ACTIVATORS, WHEREAS ZKNC IONS ARE LIKELY TO EXERCISE INHIBITING INFLUENCE ON THE ACTIVITY OF THIS ENZYME. DISRUPTED CORRELATION OF TRACE ELEMENTS IN THE FOOD IS OF ESSENTIAL IMPORTANCE FOR THE ACTIVITY OF TISSULAR ENZYMES.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R001401420005-4"

USSR /C UDC: 612.751.1.015.1-06:[613.27:577.17.049

KOLOMIYTSEVA, M.G., VOROB'YEVA, A.M., and RADOVSKIY, V., Chair of Hygiene, Leningrad Pediatric Medical Institute

"The Effect of Trace Element Composition of the Diet on the Activity of Some Bone Tissue Enzymes in Experimental Animals"

Moscow, Voprosy Pitaniya, No 2, 1970, pp 57-61

Abstract: In a chronic experiment involving 63 white rats, the addition of copper(0.018 mg/100 g of body weight/24 hours) to the diet inhibited alkaline phosphatase activity while stimulating cytochrome oxidase activity. Manganese (0.06 mg/100 g) activated both alkaline phosphatase and cytochromoxidase. Zinc (0.0108 mg/100 g) stimulated alkaline phosphatase activity while inhibiting cytochromeoxidase activity. Exclusion from the diet of one of the trace elements, and especially all three, made the animals sluggish, caused skin disorders, and affected the weight. Weight gains resulted from the exclusion of either copper, manganese, or zinc, but losses (6.8 g on the average) resulted when all three elements were eliminated. It was concluded that the activity of bone tissue enzymes is dependent not only on the absolute content of trace elements, but on their relationships in the diet.

1/1

1/4 023 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--THE SCIENTIST HAS COME TO THE SHOP -U-

AUTHOR--KOLOMNIKOV, V.

K

COUNTRY OF INFO--USSR

SOURCE--PRAVDA, DE. 13, P. 2

DATE PUBLISHED--13DEC70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--RESEARCH AND PRODUCTION INTERFACE, CONTRACT R AND D MANAGEMENT, INDUSTRIAL AUTOMATION, R AND D MANAGEMENT PROBLEM, PRODUCTION FACILITY R AND D, R AND D FUNDING, R AND D FACILITY MANAGEMENT, R AND D BUDGET, R AND D POLICY MAKING POWER, R AND D EFFECTIVENESS, R AND D COOPERATION, ECONOMIC INCENTIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1234 STEP NO--UR/9012/70/000/000/0002/0002

CIRC ACCESSION NO--AN0118289

UNCLASSIFIED

2/4 023 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AN0118289

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ENORMOUS ARMY OF SCIENTISTS IS WORKING FOR OUR INDUSTRY, "SUPPLYING" IT WITH NEW DESIGN SOLUTIONS AND TECHNOLOGICAL PROCESSES. IN ORDER TO ACCELERATE TECHNICAL PROGRESS, IT IS NECESSARY TO STRENGTHEN THE TIES BETWEEN ENTERPRISES AND RESEARCH INSTITUTIONS. THE FOLLOWING ARTICLE TELLS WHAT A LARGE PLANT GAINS THROUGH COOPERATION WITH SCIENTISTS, WHAT INFLUENCE NEW THECNICAL AND TECHNOLOGICAL DEVELOPMENTS HAVE ON ITS PRODUCTION PROFILE AND HOW TO STRENGTHEN THE TIES BETWEEN SCIENCE AND PRODUCTION EVEN MORE. MOSCOW, I SHALL BEGIN WITH SOME FIGURES. OUR PLANT CURRENTLY HAS CONTRACTUAL RELATIONSHIPS WITH THE SCIENTISTS OF 42 BRANCH AND ACADEMIC INSTITUTES AND EDUCATIONAL INSTITUTIONS. COOPERATION WITH THEM HELPS UP TO SPEED UP IMPROVEMENTS IN PRODUCTION AND RAISE LABOR PRODUCTIVITY, THE QUALITY OF OUR OUTPUT AND THE COMPETITIVENESS OF OUR AUTOMOBILES ON THE WORLD MARKET. AN AUTOMATED PRODUCTION MANAGEMENT SYSTEM IS BEING SET UP AT OUT PLANT WITH THE HELP OF THE RESEARCH INSTITUTE FOR AUTOMOBILE INDUSTRY TECHNOLOGY. WHEN THIS SYSTEM GOES INTO OPERATION, WE WILL DOUBLE OUR OUTPUT OF AUTOMOBILES WHILE ACTUALLY REDUCING OUR MANAGERIAL STAFF, NOT INCREASING IT. OUR MAIN DISPATCHING OFFICE AND OTHER PLANT SERVICES, EQUIPPED WITH THE LAST WORD IN SCIENCE AND TECHNOLOGY, OUR MODERN INFORMATION AND COMPUTER CENTER SUPPLIED WITH HIGHPOWERED ELECTRONIC MACHINES, OUR NEW DESIGN AND DRAFTING OFFICE WITH INSTRUMENTS AND EQUIPMENT FOR COPYING AND DUPLICATING TECHNICAL DOCUMENTS, EACH OF THESE IS PARTLY THE RESULT OF THE LABOR OF THE SCIENTISTS OF INDUSTRIAL RESEARCH INSTITUTES.

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3/4 023 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AN0118289

ABSTRACT/EXTRACT--THE OVERWHELMING MAJORITY OF THEM TAKE GREAT INTEREST IN THIS WORK, TAKE A VERY RESPONSIBLE ATTITUDE TOWARD IT AND READILY RESPOND TO ANY REQUEST FROM THE PLANT. NONETHELESS, THERE ARE EXCEPTIONS TO EVERY RULE. THERE ARE INSTITUTES WITH WHICH WE SIMPLY CANNTO DEVELP ADEQUATELY BUSINESSLIKE RELATIONS OR FIND A COMMON LANGUAGE. IT IS NOT EVEN CLEAR TO SPECIALISTS WHAT GOOD BEARINGS MEAN TO AN AUTOMOBILE. FOR MANY YEARS NOW WE HAVE BEEN RECEIVNG BEARINGS MANUFACTURED ACCORDING TO THE OLD DESIGN FOR OUR BASIC UNITS. THIS LEADS TO INCREASED MOISE IN THE TRANSMISSION AND IN THE REAR AXLE REDUCTION GEAR. IN ITS SEARCH FOR A SOLUTION THE PLANT HAS NOT HA GENUINE SUPPORT AT THE TOP, FORM THE ALL UNION RESEARCH, DESIGN AND TECHNOLOGICAL INSTITUTE OF THE BEARING INDUSTRY, WHICH IS SUBORDINATE TO OUR MINISTRY. BUT NOT MUCH AT ALL IS REQUIRED OF THE SCIENTIST OF THIS INSTITUTE: MERELY TO WORK OUT NORMS AND RECOMMENDATIONS FOR THE BEARING PLANTS. WE CANNOT CONSIDER THE SYSTEM OF CONTRACT RELATIONS WITH SCIENTIFIC INSTITUTIONS THAT IS NOW GENERALLY ACCEPTED SATISFACTORY. IT IS VERY IMPERFECT. ON THE ONE HAND, INSTITUTES BEAR ALMOST NO RESPONSIBILITY FOR THE ECONOMIC EFFECTIVENESS AND RELIABILITY OF INNOVATIONS THAT ARE INTRODUCED. ON THE OTHER HAND, SCIENTISTS HAVE NO INCENTIVE TO SEE TO IT THAT THE NEW EQUIPMENT CREATED AND INTRODUCED BY THE INSTITUTES IS IN FACT HIGHLY PRODUCTIVE AND RELIABLE. PERHAPS IT WOULD MAKE SENSE TO GIVE PLANTS THE RIGHT TO ALLOT A CERTAIN PERCENTAGE OF THE PROFITS GAINED THROUGH THE INTRODUCTION OF NEW EQUIPMENT TO THE INSTITUTES WITH WHICH THEY REGULARLY COOPERATE.

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4/4 023 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AN0118289

ABSTRACT/EXTRACT--THIS WOULD HELP SCIENTIFIC COLLECTIVES TO STRENGTHEN THEIR EXPERIMENTAL AND RESEARCH BASE, WHICH CERTAINLY WOULD SERVE THE CAUSE OF TECHNICAL PROGRESS. I THINK THAT ENTERPRISE EXECUTIVES WOULD UNANIMOUSLY AND WILLINGLY PROVIDE RESEARCH ORGANIZATIONS WITH MATERIAL SUPPORT. IN OTHER WORDS, THE RELATIONS BETWEEN INSTITUTES AND PLANTS SHOULD BE PLACED ON A SOUNDER ECONOMIC BASIS. THE ACTIVITIES OF PLANT RESEARCH LABORATORIES ARE OF ENORMOUS IMPORTANCE FOR THE SUCCESSFUL SOLUTION OF MANY TECHNICAL PROBLEMS. THEY WORK ON SCIENTIFIC PROBLEMS CHIEFLY IN CONJUNCTION WITH THE INSTITUTES ON A CONTRACT BASIS. BUT HERE TOO THERE ARE A NUMBER OF UNSOLVED PROBLEMS. THE TROUBLE IS THAT THESE CONTRACTS ARE FINANCED WITH FUNDS ALLOCATED FOR SCIENTIFIC WORK THE SO CALLED SRW FUNDS. THE AMOUNT OF THESE FUNDS IS USUALLY DETERMINED WITHOUT THOROUGH CONSIDERATION OF THE PLANT'S NEEDS AND IN AN UNSYSTEMATIC WAY. THIS DOES NOT ALLOW THE PLANTS TO PUT FORWARD THE MOST PRESSING PROBLEMS IN ADVANCE AND TO DECIDE WHO WILL WORK ON THEM, AND IT DOES NOT PROVIDE INCENTIVE FOR THE CREATIVE WORK OF THE PERSONNEL OF PLANT LABORATORIES. SRW FUNDS ARE ALWAYS INSUFFICIENT, ALTHOUGH, AS EXPERIENCE SHOWS, THE RETURN ON THESE FUNDS IS VERY GREAT. ALL THIS ALSO IMPEDES SCIENTIFIC AND TECHNICAL PROGRESS.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R001401420005-4"

USSR UDC 621.317.791

DOLGANOV, V. V., KOLOMNIN, V. V.

"Identical Parameter Indicator"

USSR Author's Certificate No 305377, filed 23 Dec 69, published 8 Jul 71 (from RZh--Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 4, Apr 72, Abstract No 4A477P)

Translation: An identical parameter indicator is proposed which contains profile indicators with a counting index, a scale, master and compensating sensors in each measurement channel, an amplifier, a motor connected to its output, a reduction gear, and a tape drive. For simultaneous generation of the integral average and individual estimates of the set of indexed parameters and to insure control of the magnitude of the deviation of each indexed parameter from the mean value of its set, the device is equipped with dividing resistors, a common compensating sensor, an auxiliary amplifier, and a digital display. The master and compensating sensors of each channel are connected to the mismatch signal amplifier for the mismatch between them, and the outputs of all the master sensors are connected via dividing resistors to the input of the auxiliary amplifier of the mismatch signal of the aggregate signal of the master and common compensating sensors. The output of the latter is connected through its

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USSR

DOLGANOV, V. V., et al., USSR Author's Certificate No 305377, filed 23 Dec 69, published 8 Jul 71

dividing resistor via the same amplifier to the control winding of the motor, connected through a reduction gear to the common compensating sensor and to the counting index and the digital display of the average integral values of the set of index parameters. There is 1 illustration.

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Instrumentation and Equipment

USSR

UDC 621.793:620.17.05

KOLOMYTSEV, P. T., IVANOV, YE. G., KALAPIROV, P. D., and STREKOPYTOV, S. A.
Air Force Engineering Academy imeni Zhukovskiy

"Installation for the Investigation of the Plasticity of Diffusion Coatings Applied on Heat-Resistant Alloys"

Moscow, Zavodskaya Laboratoriya, No 5, 1973, pp 618-619

Abstract: The Air Force Engineering Academy imeni Zhukovskiy has developed a unit on which specimens with coatings are tested for bending: after this, the angle of rotation of the section is determined and from its degree the relative elongation at the moment of first crack development is calculated. The plasticity is characterized by the relative elongation $\delta = b\varphi / 2l$, where b and l are thickness and length of the specimen and φ = angle of rotation at first crack development. The unit is used for the investigation of the plasticity of protective coatings produced by calorization in a mix of ferroaluminum and ammonium chloride and by chromocalorization in vacuum on specimens of KhN70VMTTYu and KhN55VMTFKYu alloys. As a result of chromocalorization and calorization, layers with maximum Al-contents of 14-24 and 30-38%, respectively, develop. It is shown that on

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USSR

KOLOMYTSEV, P. T., et al., Zavodskaya Laboratoriya, No 5, 1973, pp 618-619

specimens of KhN70VMFTYu alloy the increase of Al-content in coatings reduces its plasticity at room temperature. The plasticity of diffusion coatings on chromocalorized specimens of KhN55VMTFKYu alloy with ~ 24%Al is considerably higher than on calorized specimens with maximum 38%Al in diffusion layers. Two figures.

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USSR

UDC 539.374+669.14.018.44

KOLOMYTSEV, P. T., IVANOV, YE. G., KALAPIROV, P. D., and STREKOPYTOV, S. A., Moscow

"Investigation of the Ductility of Coatings on Heat-Resistant Alloys"

Kiev, Problemy Prochnosti, No 6, 1973, pp 106-107

Abstract: Development of an algorithm is described for investigating the ductility of protective coatings on heat-resistant alloys over a wide temperature interval. Coatings were formed on alloys KhN70VMFTYu (EI826) and KhN55VMFKYu (EI 929) by calorizing in a mixture of ferroaluminum and aluminum chloride as well as chromium calorizing in a vacuum. It was found that when the aluminum content in the coating is increased the ductility properties of the coating are impaired. In calorizing, brittle aluminides NiAl and Ni_2Al_3 are formed whereas in chromium calorizing, aluminides NiAl and the ductile Ni_3Al are formed which imparts some ductility to the coating. 3 figures.

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USSR UDC: 621.362.2(088.8)

KHANIN, M. A., DIDORENKO, N. S., DUDKIN, L. D., MAZUR, V. A., KOLOMOYERS, N. V., ZYKOVA, N. P.

"A Commutation Line"

USSR Author's Certificate No 256002, filed 2 Jan 68, published 19 Mar 70 (from RZh-Elektrotekhnika i Energetika, No 10, Oct 70, Abstract No 10A163 P)

Translation: This Author's Certificate introduces a commutation line for a thermocouple produced by combined hot powder pressing. As a distinguishing feature of the patent, the line is made from aluminum powder which is partially oxidized (by 5-20 percent). This makes it possible to increase the working temperature to 600°C.

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USSR

UDC: 621.396.674.3

KOLOMOYTSEV, F. I., VARYVDIN, V. S., OVSYANIKOV, V. V.

"Using Capacitive Elements to Increase the Bandwidth of Folded Dipoles"

Moscow, Radiotekhnika i Elektronika, Vol 27, No 11, Nov 72, pp 2429-2431

Abstract: An analysis is made of folded dipole antennas with discretely connected impedances, and in particular with capacitive elements. Results are given on calculation and experimental analysis of a broadband symmetric V antenna with inserted capacitors. The results show that the capacitors smooth out the current distribution on the dipole and prevent phase inversions at current "nodes". Conditions close to the traveling wave mode are set up in the antenna. Both the input impedances and radiation pattern are stabilized, input reactance is considerably reduced in absolute value and the resistive component of the input impedance is stabilized. The V dipole gives at least 0.5 for the TWR in a frequency band of 50-60% as compared with 20% for a similar antenna without capacitors.

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USSR

KOLOMOYTSEV, F. I.; et al

"Effect of Magnetic Fields on the Structure and Optical Properties of ZnS-Cu Electroluminophores"

Leningrad, Optika i Spektroskopiya; March, 1972; pp 564-6

ABSTRACT: In the work the authors studied the effect of strong, pulsed magnetic fields at room temperature on changes in the structure of a copper-activated zinc sulfide electroluminophore. It is shown that the action of magnetic fields with intensities of 50, 100, and 150 koersteds on an electroluminophore consisting mainly of two stable phases affects their ordering and the $\beta \rightarrow \alpha$ phase transition of ZnS-Cu. For a field with an intensity of 150 koersteds a disordering of the hexagonal structure and the absence of an intermediate phase state of ZnS-Cu were observed. The relations between changes in the optical, volt-ampere, and structural properties of ZnS-Cu following the action of magnetic fields at room temperature were determined.

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1/2 033 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EFFECT OF ELECTRON BOMBARDMENT ON THE LUMINESCENCE OF A COPPER ACTIVATED ZINC SULFIDE PHOSPHOR -U-

AUTHOR-(03)-KOLOMOITSEV, F.I., BELOV, D.G., KONDRASHOV, A.P.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(1), 353-5

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRON BOMBARDMENT, ZINC SULFIDE, ELECTRIC FIELD, ELECTROLUMINESCENCE, ELECTRON ENERGY, RADIATION INTENSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1052 STEP NO--UR/0368/70/012/002/0353/0355

CIRC ACCESSION NO--AP0107561

UNCLASSIFIED

2/2 033 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0107561

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF SIMULTANEOUS BOMBAROMENT WITH FAST ELECTRONS AND THE APPLICATION OF A SINUSOIDAL VOLTAGE ELEC. FIELD ON THE NONADDITIVE LUMINESCENCE PROPERTIES OF ZNS-CU ELECTROLUMINOPHORS OF THE EL-510M TYPE WAS STUDIED BY USING AN EARLIER DESCRIBED METHOD (F. I. KOLOMOITSEV, D. G. BELOV, A. P. KONDRASHOV, AND E. K. MAL'TSEV, 1970). AT DIFFERENT AMPLITUDES AND A CONST. FREQUENCY OF THE EXCITATION VOLTAGE AND CONST. FLUX AND ENERGY OF THE FAST ELECTRONS, THE BRIGHTNESS OF THE ELECTROLUMINESCENCE, I SUBEL, AND SUBSEQUENTLY THE SUM LUMINESCENCE, ISIGMA, OF THE PHOSPHORS INCREASES BY THE FOLLOWING LAW: I EQUALS AU PRIMEB PLUS I SUBO, WHERE A AND B ARE EXPTL. DETO. COEFFS. AND I SUBO CHARACTERIZES THE LUMINESCENCE BRIGHTNESS EXCITED ONLY BY AN ELECTRON FLUX. IN THE LOW VOLTAGE REGION, THE SUM BRIGHTNESS EXCEEDS THE COMBINED BRIGHTNESS AND LEADS TO A NEG. NONADDITIVITY, DELTAI, WHICH DECREASES WITH INCREASING POTENTIAL TO ZERO AT 90-110 V, DEPENDING ON THE ELECTRON ENERGY. AT A CONST. EXCITATION VOLTAGE, THE LUMINESCENCE BRIGHTNESS IS ALMOST LINEARLY DEPENDENT ON THE ELECTRON ENERGY. THE NONADDITIVITY OF THE BRIGHTNESS AT 140 V IS POS. AND INCREASES WITH INCREASING ELECTRON ENERGY. HOWEVER, AT SMALLER THAN 100 V, THE NONADDITIVITY IS NEG.

UNCLASSIFIED

USSR

UDC 620.193.01:669.248

IVANOV, YE. G., KOLOMYTSEV, P. T., and KOSTINA, L. A., Air Force Engineering Academy imeni N. Ye. Zhukovskiy

"On the Catastrophic Oxidation of Nickel Alloys"

Moscow, Zashchita Metallov, Vol 9, No 1, Jan-Feb 73, pp 80-82

Abstract: In order to explain the catastrophic oxidation of heat-resistant nickel alloys (KhN70VMFTYu (EI826), KhN55MTFKYu (EI929), and KhN51VMTYuKFR (EP220)), the composition and kinetics of sublimation of oxide sublimates produced was investigated. Molybdenum is shown to be the main component in the sublimate, its concentration increasing with rising oxidation temperature. The EP220 alloy was found to have the highest sublimation rate of oxides and the lowest heat resistance; the EI929 alloy had the lowest sublimation rate of oxides and the highest heat resistance. A possible sublimation mechanism is presented. The catastrophic pitted oxidation observed at temperatures over 1000° is combined with the development of liquid and gaseous oxides of molybdenum. Two figures, one table, four bibliographic references.

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USSR

UDC 621.762

BRYNZA, A. P., OGNEV, R. K., RYNSKAYA, Ye. S., PATRUSHEVA, A. G., KOLOMOYETS, G. G., SOROKINA, Z. Ye., and TER-POGOSYAN, E. D.

"Corrosion of Powder Metallurgy Titanium in a Damp Atmosphere Containing Hydrogen Chloride and in Solutions of Hydrochloric Acid"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya Publishing House, Vol 6, 1970, pp 105-111

Translation: The corrosion behavior of powder metallurgy titanium in gases and solutions of hydrochloric acid within the temperature interval 20-80°C is investigated. It is established that at a temperature of 20°C, atmospheric corrosion of powder metallurgy titanium above 3 and 7% solutions of hydrochloric acid is not observed, and in a solution of hydrochloric acid with a concentration up to 10%, slight corrosion is observed after a certain induction period. At 80°C, powder metallurgy titanium corrodes with all concentrations of hydrochloric acid that were studied. The effective energy for activating the process of dissolving titanium specimens is 62.8-71.2 kilojoules per mole. Seven illustrations, one table, and 11 bibliographic entries.

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USSR

UDC 669.295.015.3:543.42

GRIKIT, I. A., GALUSHKO, Ye. G., POLONIK, V. V., OGNEV, P. K., KOLOMOYETS, G. G., and PEREVYAZKO, A. I.

"Spectral Determination of Oxygen in Hydrided Titanium Powders"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana, Metallurgiya Publishing House, Vol 6, 1970, pp 155-159

Translation: A description is given of the method, based on the principle of full dehydrogenation of briquetted suspended matter, which is analyzed, in an anode state of the direct current arc and exciting the hydrogen from the mixture of gases in an argon environment by the same discharge. Recording of the analytic lines H 6,562.85 Å/Ar 6,965.43 Å was done on an ISP-51 spectrograph with a chamber with a focusing distance of 270 mm on Infra-760 photoplates. Graduated charts for determining hydrogen were constructed on coordinates (Delta S; lg G). The reproducibility of results from spectral determination of hydrogen in hydrogenated titanium powders is characterized by a variation coefficient of 5-6% with a hydrogen concentration interval between 1.5 and 4%. Three illustrations, two tables, and one bibliographic entry.
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USSR

UDC 621.762.001:669.295

OGNEV, R. K., BRYNDIN, V. G., TER-POGOSYAN, E. D., KOLOMOYETS, G. G., and PEREVYAZKO, A. I.

"Study of the Process of Oxidation of Cermet Titanium Specimens"

Sb. tr. Vses. n.-i. i proyektn. in-t titana (Collection of works of the All-Union Scientific Research and Design Institute of Titanium), 1970, 5, pp 81-85 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11G307)

Translation: Together with oxidation, compaction of specimens takes place. The rate of oxidation of porous Ti specimens at temperatures higher than $\alpha \rightleftarrows \beta$-transformation of Ti is inhibited and the intensity of compaction increases. 3 ill. Author's abstract